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Enhancing methane production from *U. lactuca* using combined anaerobically digested sludge (ADS) and rumen fluid pre-treatment and the effect on the solubilization of microbial community structures

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Abstract

Methane production by the anaerobic digestion of seaweed is restricted by the slow degradation caused by the influence of the rigid algal cell wall. At the present time, there has been no study focusing on the anaerobic digestion of *U. lactuca* by co-fermentation and pre-treatment with rumen fluid. Rumen fluid can favor methane production from algal biomass by utilizing the diversity and quantity of bacterial and archaeal communities in the rumen fluid. This research presents a novel method based on combined ADS and rumen fluid pre-treatment to improve the production of methane from seaweed. Biochemical methane potential (BMP) tests were performed to investigate the biogas production using combined ADS and rumen fluid

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